

## CHAPTER 7. VICINITY LAND USE PLAN

### a. Introduction

The airport currently experiences no significant problem with land use compatibility. Nor does today's development seriously limit the availability of the land necessary for the facility to achieve its full potential as a general aviation airport. But urban development in the I-17 corridor is rapid, and compatibility problems can be expected to occur in the near future unless actions are taken promptly to steer and control this growth.

The following analysis reviews the current situation and the availability of land use controls, and recommends appropriate uses and the mechanisms to bring them about. It addresses three ways in which the airport interacts with adjacent land uses, namely

- aircraft noise,
- effect of overflight by light aircraft, and
- induced development.

The purpose of the analysis is to propose a pattern of land use for the airport vicinity which will ensure the most compatible development for the area and which will not restrain the airport from effectively meeting its proper role in the regional airport system

This land use analysis does not address restrictions on the height of structures; these will be controlled by the airport height zoning ordinance (see Chapter 8).

### b. Existing Land Use and Development Trends

Existing land use in the airport vicinity is shown in Figure 2-5 and is described in Chapter 2. The land to the north and east of the airport is generally vacant. Industrial land uses occupy the land south and west of the airport. West of the airport, between 19th Avenue and the I-17 Freeway, the land is developed in mixed, low-level, industrial uses, with mobile home and recreational vehicle parks. South of the airport, much of the land is still vacant, but it is being developed as modern, high-quality industrial parks. The Sperry Rand Plant is located just to the southwest of the airport. Further south, beginning one-half mile from the airport boundary, new, mostly single-family, housing developments prevail.

Development in the area is vigorous. The airport is located on what is now the northern edge of the Phoenix urbanized area, 16 miles north of downtown Phoenix. The airport entrance is less than two miles east of an interchange with Interstate Highway 17, the Black Canyon Freeway. The

freeway has been a catalyst for Phoenix's growth to the north and the freeway corridor is an attraction for much of the region's high technology development, including Sperry Rand, INTEL, and Digital Equipment. One mile south of the airport, along the Beardsley Road corridor, the State of Arizona and Maricopa Association of Governments are planning a limited access highway that will further improve ground access to the airport.

Apartments are being built in the block south of Deer Valley Drive, between 23rd Avenue and the Freeway. Just to the northwest of the airport a new industrial park is planned. To the north and west of the airport the land is mostly vacant and there does not appear to be as much pressure for development.

#### c. Community Land Use Plans

Phoenix Concept Plan 2000, adopted in 1979, divided the city into nine "Urban Villages." (See Figure 7-1) The general concept is to bring planning closer to the local level and to promote citizen involvement in the planning process. Each urban village has its own citizen planning committee. The planning committees are responsible for setting goals and preparing long range plans for their villages. Each of the conceptual urban villages is organized around a village center or core, which has the highest concentration of shopping, employment, and services. Surrounding the core, intensity of use decreases out to the periphery of the villages, which contain the least intense land use and may include natural features separating the villages, such as mountains or parks.

The Deer Valley village core area is proposed in the concept plan for the general area of the intersection of Beardsley Road and the Freeway, but this area has yet to experience any significant intense development. The village planning group and City planning staff are currently proposing an additional village core to the north at the intersection of Happy Valley Drive and I-17. The airport is 2 to 3 miles to the northeast of the Beardsley Road core area and about the same distance to the southeast of the Happy Valley Drive core area.

The local planning which is the objective of the program has been conducted by City Planning staff and the Deer Valley Village Planning Committee. A draft land use plan was prepared for the City and was adopted by the City Council in October 1985. This plan supports development of the airport and encourages compatible land uses in the airport vicinity.

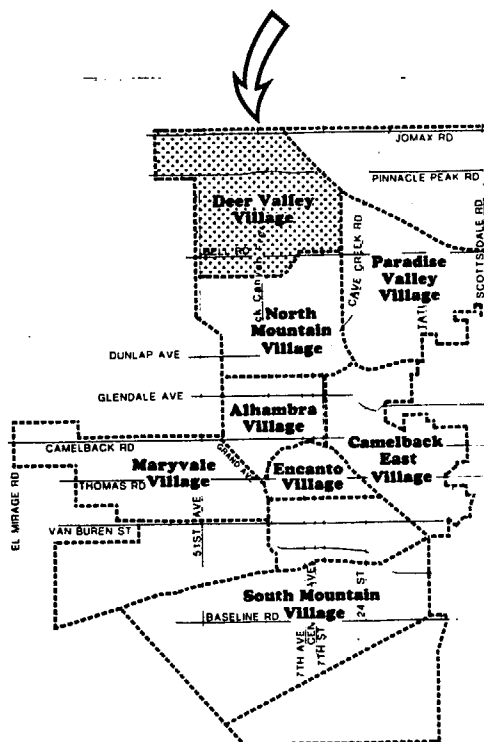
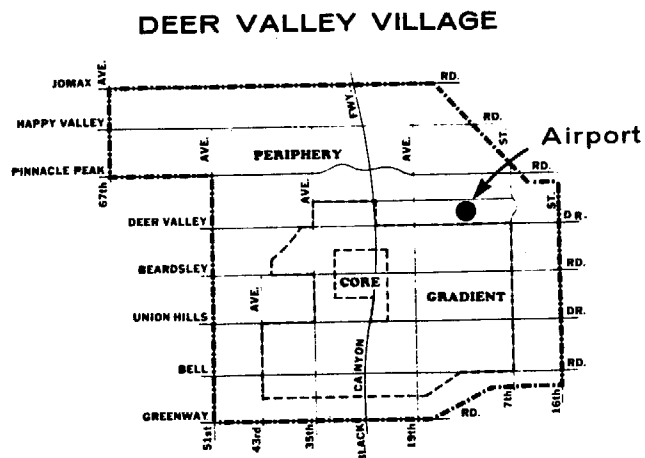
#### d. Land Use Controls

The principal means of controlling land use around the airport is through land use planning and zoning. Both the City of Phoenix and Maricopa County are authorized to perform comprehensive planning and to enact zoning.

# PHOENIX URBAN VILLAGE CONCEPT

## PHOENIX-DEER VALLEY MUNICIPAL AIRPORT

Figure 7-1



**CITY OF PHOENIX**

Source: Phoenix Planning Department

Figure 7-2 shows the existing generalized zoning around the airport. The zoning is largely industrial and commercial in areas immediately adjacent to the airport, uses which are generally compatible with airport activities. In most commercial zones, single- and/or multi-family residential uses are permitted. In industrial zones, commercial uses are permitted and residential uses are permitted with a use permit. This "pyramidal" characteristic of the ordinance may permit incompatible uses, such as residential, even though the basic use would be acceptable. In industrial parks, no residential uses are permitted, and most retail uses are also prohibited.

Phoenix also has other tools available for controlling land uses. Subdivision regulations outline procedures for review of subdivision plans by city departments. Additionally, the city has the power of eminent domain as established by Chapter 2, Section 2 of the City Charter and Arizona Revised Statutes 12-III.

#### e. Aircraft Noise

The primary factor in land use compatibility is that of aircraft noise. The level of annoyance created by different aircraft noise levels is well documented, and widely recognized criteria as to what is and what is not compatible in a particular noise zone have been developed. The criteria discussed below are generally those endorsed by federal agencies with responsibilities in the area, including FAA, US Department of Housing and Urban Development, and US Environmental Protection Agency.

In Figure 7-3 are shown Ldn noise contours for 1995, which are the basis for developing the land use recommendations. (Flight tracks are depicted in Figure 4-1.) The Ldn 70 and 75 zones are restricted to airport property, so the only noise zone calling for significant land use restrictions is the Ldn 65-70 zone. The following discussion of criteria addresses this one zone.

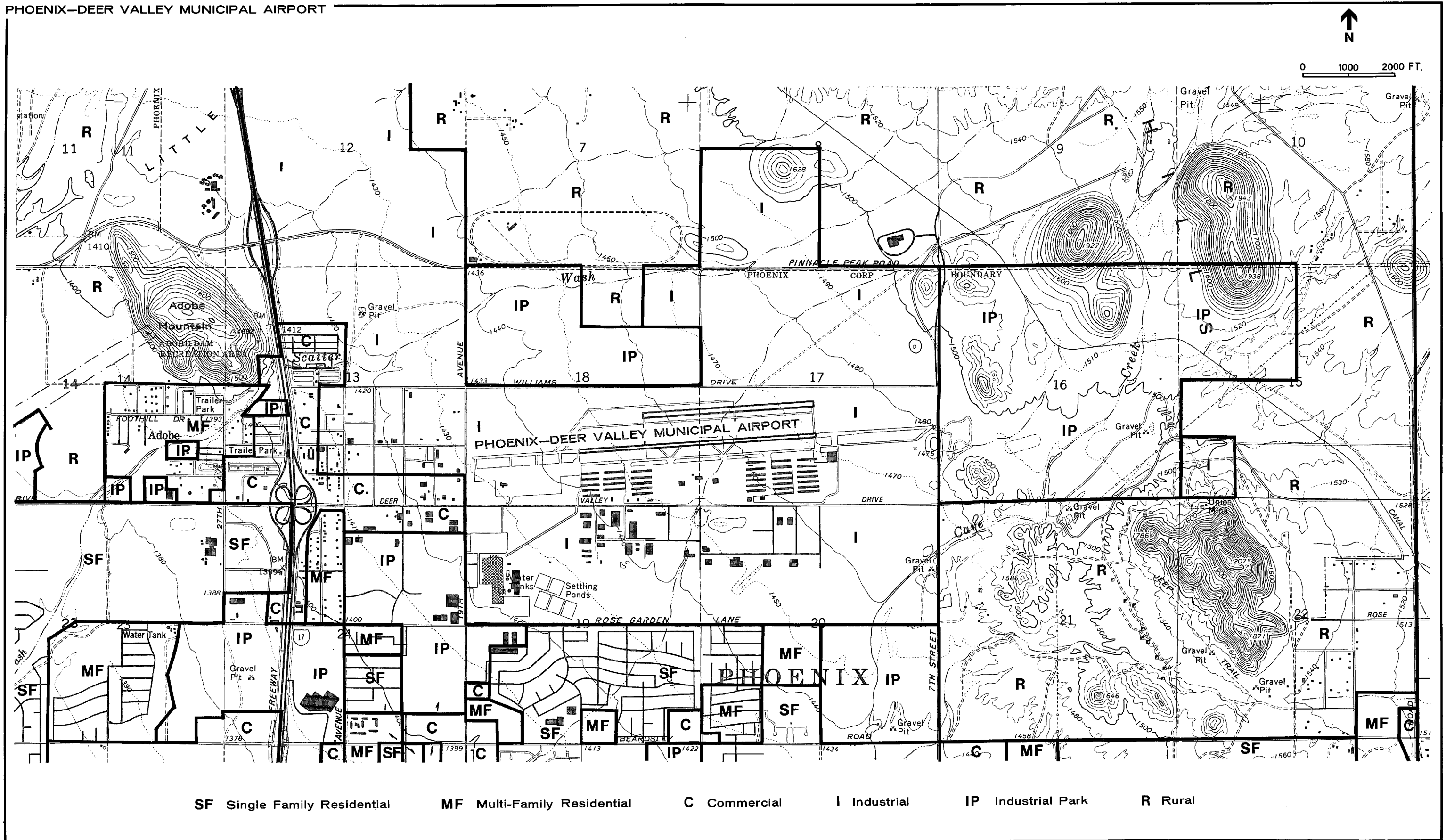
The Land Use Compatibility Criteria shown in Table 7-1 are derived from the federal criteria presented in Federal Aviation Regulation Part 150, amended to reflect local conditions and experience in use of the criteria at other airports similar to Deer Valley.

The following are notes on selected categories of land use, summarizing the recommendations and explaining the rationale for the suggested criteria where they differ from the FAA recommendations.

#### Residences (other than mobile homes and hotels)

In the Ldn 65-70 zone, residential development should be considered incompatible; it should be permitted only if an interior noise level reduction (NLR) of 25 dBA is achieved.

PHOENIX-DEER VALLEY MUNICIPAL AIRPORT



PHOENIX-DEER VALLEY MUNICIPAL AIRPORT

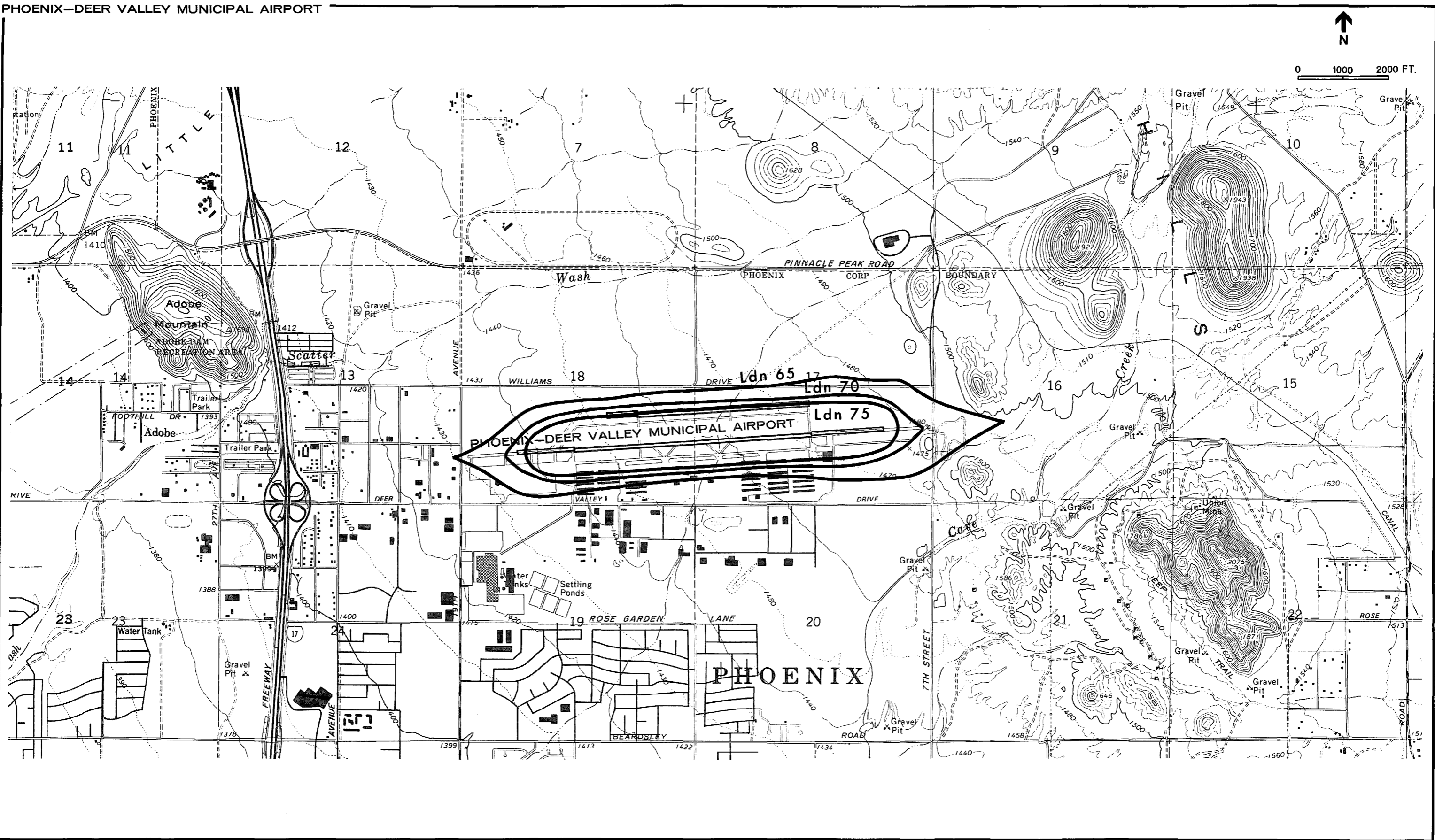


TABLE 7-1

LAND USE COMPATIBILITY CRITERIA  
DEER VALLEY MUNICIPAL AIRPORT

Land Use	Ldn 65-70
<u>Residential</u>	
Residential, other than mobile homes and hotels*	N
Mobile homes	N
Hotels	R(25)
Nursing homes*	N
<u>Public Use</u>	
Schools (public and private)	R(30)
Child care centers	R(25)
Churches	R(25)
Auditoriums, concert halls	N
Parking	Y
Hospitals	R(30)
<u>Commercial Use</u>	
Offices	Y
Retail trade	Y
Wholesale trade	Y
Utilities	Y
<u>Manufacturing and Production</u>	
Manufacturing, general	Y
Research and laboratory uses sensitive to vibration	Y
Agriculture	Y
Mining	Y
<u>Recreational</u>	
Outdoor sports arenas	Y
Outdoor amphitheaters, music shells	N
Parks, golf courses, and other active recreation areas	Y

Key

Y: Land use and related structures compatible without restrictions.

N: Land use and related structures are not compatible and should be prohibited.

R(25) or (30): Land use and related structures generally compatible; measures to achieve Noise Level Reduction (NLR) of 25 or 30 dBA must be incorporated into design and construction of structures. Normal construction can be expected to provide an NLR of 20 dBA, thus, the reduction requirements may be stated as 5 or 10 dBA over standard construction. Since the requirements normally assume mechanical ventilation and closed windows year round, the use of NLR criteria will not eliminate outdoor noise problems.

\*Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA (in Ldn 65-70) should be incorporated into the building code if the uses are to be considered compatible. If the code does not require this insulation the uses should not be permitted.

### Mobile Homes

Mobile homes provide a very low level of interior noise attenuation (approximately 10 dBA compared to 20+dBA for conventional residences), and special noise insulation measures are rarely effective or feasible. For this reason, it is recommended that no mobile homes be permitted in the Ldn 65 contour. The restriction should be considered for areas outside of the Ldn 65 contour if they are subject to considerable overflight.

### Hotels

Construction of hotels is generally of a standard that results in interior sound attenuation higher than that of single family homes. The nature of their use justifies minimal restrictions, provided that a healthy indoor noise level is attained. It is recommended that hotels be permitted in the noise zone and that the FAA guidelines of 25 dBA for interior noise level reduction be used.

### Schools

Schools may be considered compatible in the Ldn 65-70 noise zone provided that they have an NLR of 30 dBA. It has been found that the special sensitivity of classroom teaching to periodic aircraft noise events justifies an NLR level more stringent than that applied to residences and recommended in the FAA criteria. These criteria would be applied to both public and private schools.

### Hospitals

Hospitals are usually well-constructed, air conditioned, and kept closed, resulting in good noise attenuation. Provided that specified NLR levels are attained, there should be minimal restrictions on locating these facilities. It is recommended that hospitals be considered compatible in the noise zone Ldn 65-70 with an NLR of 30 dBA. The level suggested is higher than that in the federal criteria because experience has shown that the NLR suggested is typically achieved in modern hospitals, and because of the disturbance that intermittent loud aircraft noise levels could create for the sick.

### Nursing Homes

Nursing homes are essentially residential in character and should be addressed in the same way as multi-family homes. It is recommended that they be permitted in Ldn 65-70 with an NLR of 25 dBA. This is consistent with the criterion suggested in the federal regulations.

### Child Care Centers

Since classroom instruction is not as important a part of a child care center's functions as it is a school's, it is recommended that criteria for child care centers be less stringent than those for schools. It is recommended that these facilities be considered compatible in zone Ldn 65-70 with an NLR of 25 dBA. This use is not specifically addressed in the FAA suggested criteria.

### Churches

Given that the amount of time per week that a church is used for quiet activities is small, and the proportion of time spent by an individual in a church is small, the rationale for strict compatibility criteria is less strong than for schools. It is recommended that the criteria proposed in the FAA's table of criteria in Part 150 be applied, namely a 25 NLR requirement. (For schools, child care centers, or other types of facilities that are part of a church complex, the criteria for these other types of facilities would be applied).

### Auditoriums and Concert Halls

These uses are not appropriate from the perspective of broader land use planning principles in the airport area, though they could be compatible in similar noise zones at other airports given adequate interior noise attenuation.

### Commercial, Industrial and Recreational Uses

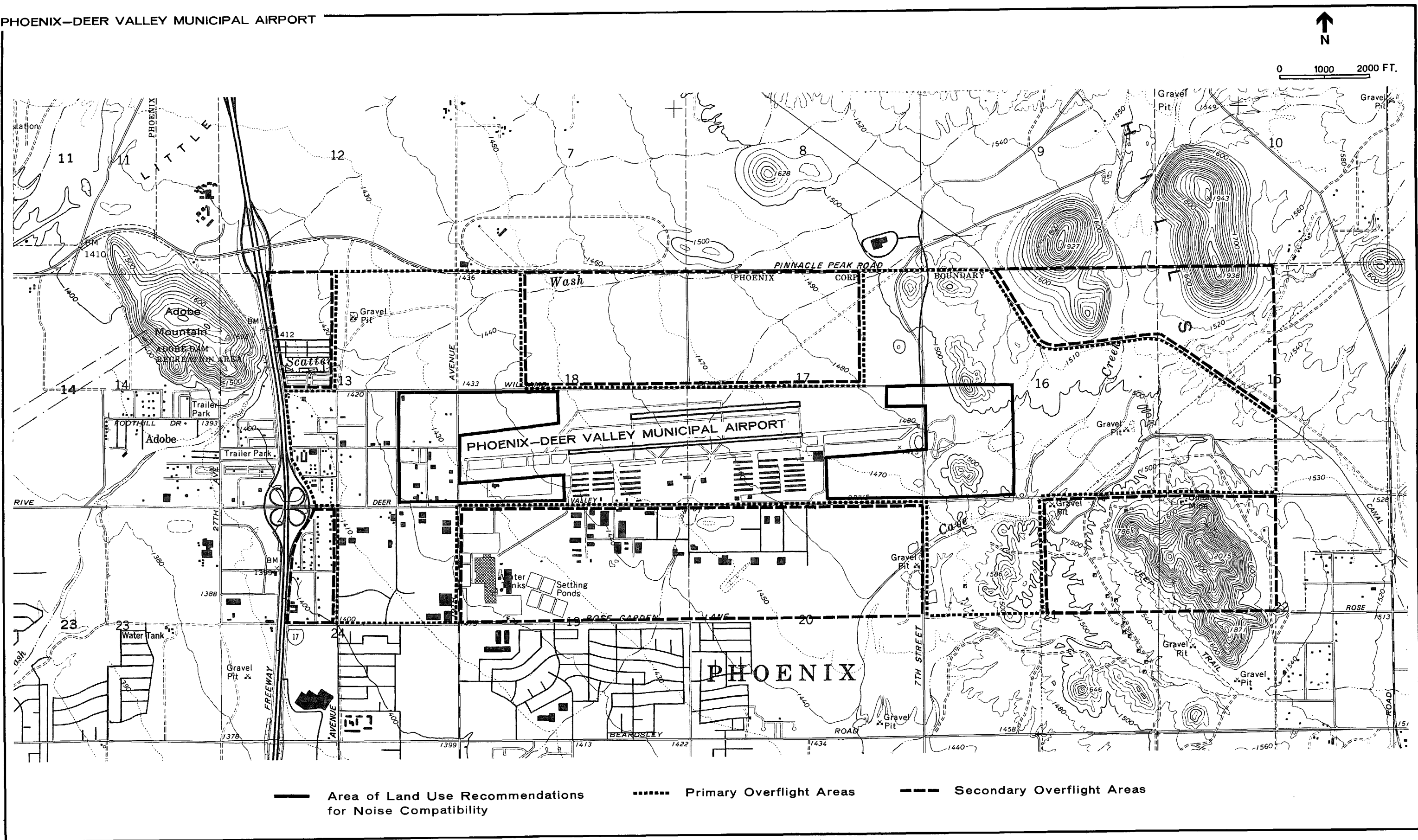
Most uses in these categories are not as noise sensitive as the uses described previously. It is recommended that the criteria suggested in the FAA guidelines be applied.

The land use policies discussed above should be applied to areas affected by the 1995 Ldn 65-70 noise zones to the east and west of the airport. Areas recommended for application of these criteria are shown in Figure 7-4. They are:

AREAS RECOMMENDED FOR AIRPORT-COMPATIBLE USES

FIGURE 7-4

PHOENIX-DEER VALLEY MUNICIPAL AIRPORT



East - area bounded by 7th Street, Williams Drive (extended), and Deer Valley Drive, and extending to 2,000 feet east of 7th street, together with tracts at the northeast and southeast corners of the airport, if these are not in airport ownership.

West - area bounded by 21st Avenue, Williams Drive, 19th Avenue, and Deer Valley Drive, together with tracts at northwest and southwest corners of the airport, if these are not in airport ownership.

These areas include buffers beyond the areas projected to fall within the Ldn 65 contour in 1995, to allow for possible unforeseen future changes in air traffic.

#### f. Other Compatibility Factors

Other factors in determining what uses are compatible adjacent to the airport are:

- effect of overflight by light aircraft, and
- induced development.

Criteria and recommendations addressing these factors to be added to those for noise are developed below.

Overflight - it has been found that frequent overflight of residential areas by light aircraft at low altitudes can cause anxiety and annoyance, even where there is no aircraft noise problem according to the noise compatibility criteria. It is further recommended, therefore, that residential development and schools be restricted in areas where such overflights occur, and will occur with increasing frequency in the future. (See Figure 7-4.) By the Year 2005, up to 800 operations per day are predicted to take place off each end of the airport.

The areas where the overflight factor should be considered are in two categories, primary overflight areas, and secondary overflight areas. Primary areas subject to continuing high levels of overflight by light aircraft and by high-performance aircraft, occur at both ends of the runways. At the east end of the runways, dispersal of tracks occurs between 7th Street and 12th Street from itinerant departures turning onto course, and from aircraft in the "race-track patterns" to the south of the airport off Runway 7R-25L, and to the north off Runway 7L-25R. However, the high terrain to north and south of the runway centerline acts to channel flight tracks "through the gap" with further dispersal occurring between 16th and 20th Streets. This will be particularly marked during the hotter periods of the year, when fewer aircraft departing to the east will be able to turn short of 16th Street. It is recommended that residential development be restricted in areas where this activity will be

most intense. Section 16 south of the Canal and the western half of Section 15 south of the Canal should be included to protect areas along the runway centerlines. A tract 1/4 section deep fronting and to the east of 7th Street, between Pinnacle Peak road and Williams Drive, and the northwest quarter of Section 21 fronting Deer Valley Drive and 7th Street should be included to protect areas where aircraft in the pattern are at low altitude as they approach or depart the airport.

The dispersal of tracks to the west is less restrained by high terrain, and it is recommended that the non-residential policy be applied to the area bounded by I-17, Williams Drive, 19th Avenue, and Deer Valley Drive. Areas overflowed by aircraft in the pattern and at low altitude should also be included in "primary overflight areas". These include the northeast quarter of Section 24 fronting Deer Valley Drive and 19th Avenue; the northeast quarter of Section 13 fronting Williams Drive and 19th Avenue; and a tract 1/4 section deep fronting and to the east of 19th Avenue between Williams Drive and Pinnacle Peak Road. All of the above areas together with the airport and the non-airport tracts at the corners of the airport should be subject to the residential restriction.

The above defines the areas subject to most frequent overflight, and where it is most important that residential development be limited. The half sections to north and south of the airport and extending in an east-west direction out to the limits of the areas shown as primary areas of overflight on the map are classified as secondary overflight areas. These will also experience increasing incidental overflight, and residential development preferably should not be encouraged in these areas. Frequent overflight also occurs along the path of 45° entries into the traffic patterns to the north and south, from visual reporting points which include the Digital facility, the Happy Valley Drive overpass, Cave Creek Dam, and the Mountain View tennis courts.

Induced Development - The availability of corporate aviation services at the airport is expected to become a more important factor in investment decisions, re-inforcing the current trend for high-tech and other manufacturing/commercial development to locate in this area. No significant change from current patterns is anticipated; the development of these uses between Rose Garden Lane and Deer Valley Drive is an observed trend and is acceptable according to the compatibility factors described above. The trend to residential uses south of Rose Garden Lane is compatible with airport operations.

The interchange with I-17 makes land fronting Deer Valley Drive more accessible to the regional highway system than land fronting Williams Drive. The probability that industrial/commercial development will continue to occur along Deer Valley Drive is high. But with aviation facilities scheduled for construction on the north side of the airport, Williams could experience impetus for commercial and similar development. These are uses which would be quite compatible with and supportive of airport activity.

The pressure for commercial development east of the airport as a result of the airport is likely to be less, due to the higher terrain and the fact that these sections do not have as ready access to I-17 as those adjacent

to and west of the airport. However, the planned Outer Loop beltway along Beardsley Road will enhance accessibility and encourage development east of the airport.

g. Summary of Development Factors

A summary of the factors is presented in tabular form in Table 7-2.

h. Land Use Recommendations

It is recognized that airport-related factors will be considered along with other planning factors, such as availability of public services, juxtaposition of other uses, programmed highway development, and overall City development policy, in determining what are appropriate land uses. The recommended uses, shown in Figure 7-5, are primarily based upon compatibility with the airport.

The following are notes on several of the critical areas around the airport, and the uses assigned to them.

- areas on runway centerlines and west of I-17 will receive some overflight, but this, together with airport noise, will be minor factors in determining proper uses for this area. Other community development factors will control. The areas immediately to the west of I-17 are subject to Ldn noise levels from Freeway traffic which exceed those due to aircraft overflight.
- the area bounded by I-17, Williams Drive, 19th Avenue and Deer Valley Drive and including the two tracts of land to the east of 19th Avenue, should be assigned industrial/commercial uses consistent with the compatible land use lists, and should be zoned for low-intensity development to limit the assembly of people on the ground.
- the area bounded by 7th Street, Williams Drive, 12th Street and Deer Valley Drive, including two tracts of land west of 7th Street lies in the noise zone and/or the areas where the intensity of development should be restricted. This area should be planned for and zoned in low intensity industrial/commercial uses or outdoor recreation.
- the areas south of the airport are developing in a compatible manner, with industrial/commercial uses in the northern halves of Sections 19 and 20, and with residential uses to the south.

TABLE 7-2

## SUMMARY OF LAND USE FACTORS, AIRPORT VICINITY

## DEER VALLEY MUNICIPAL AIRPORT

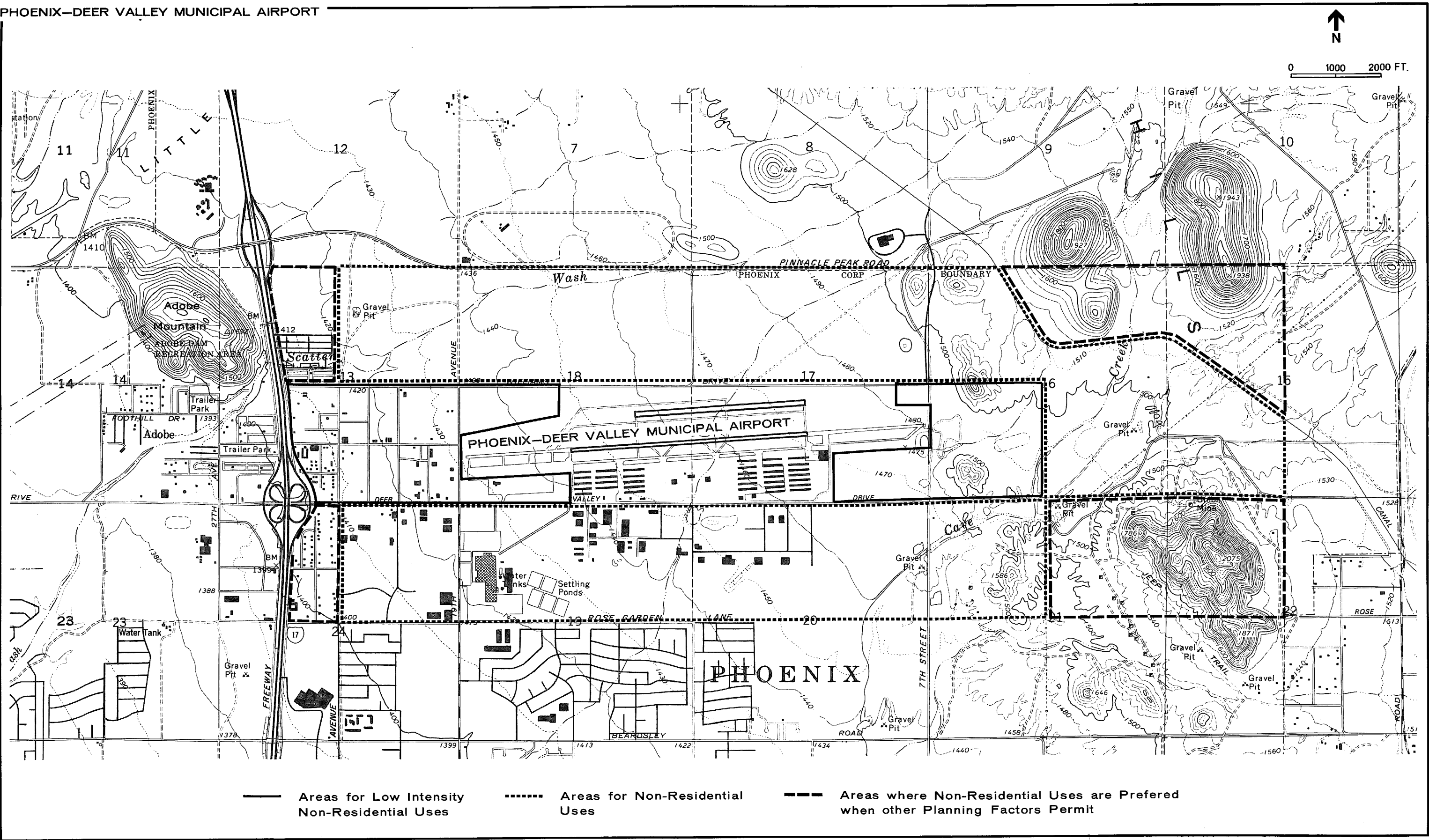
Factor	Areas Affected	Compatible Uses	Incompatible Uses
Aircraft Noise	East-to 10th St.	- Offices	- Residential Uses
	West-to 21st Ave.	- Retail - Wholesale, Storage - Manufacturing - Mining - Outdoor recreation	- Schools* - Churches* - Hospitals*
Overflight	East-to 20th St. West-to I-17	- Most uses other than residential but of limited intensity.	- Residential - Schools
Induced	South and West	- Strong pressure for industrial/commercial development	- Some development of apartments, 23rd Avenue
	North and East	- Less immediate interest in industrial/commercial due to lack of direct access to I-17, more remote from current activity centers.	- Residential development pressure in 24th St. growth corridors.

\*Compatible, with appropriate noise level reduction.

COMPATIBLE LAND USE RECOMMENDATIONS

FIGURE 7-5

PHOENIX-DEER VALLEY MUNICIPAL AIRPORT



- the area bounded by I-17, Deer Valley Drive, 19th Avenue, and Rose Garden Lane should preferably be in non-residential uses, without restrictions other than the height restrictions which would be imposed by the Airport Height Zoning Ordinance. The recent apartment construction on 23rd Avenue is not incompatible according to specific noise criteria, but the areas are subject to significant overflight and this type of development should not be encouraged.

The recommendations show three basic categories of uses, with the determination of what is most appropriate in individual areas depending upon non-airport planning factors. These categories are:

Low-intensity, non-residential uses including industrial, industrial park, commercial, mining, open-space or recreation uses, each of which should be developed to low intensity. These are recommended for application to the noise zones and the areas subject to most frequent overflight.

Non-residential uses, consisting of the above package of uses, but without the requirement that they be low intensity. This category would be applied to areas where overflight occurs, but at less frequency than off the runway ends.

Preferred non-residential uses, consisting of the same package of uses, but where the uses are stated as preferred only. Should other planning factors appear to dictate another use, then those should be considered provided that they are not clearly inconsistent with aircraft activity.

#### i. Implementation

The existing zoning in the airport vicinity is generally consistent with the types of use recommended in Section h. However, the regulations for A-1 Industrial District (Light Industrial); and C-1, C-2 and C-3 Commercial Districts, as defined in the City Zoning Ordinance, permit uses which would not be considered compatible according to the criteria discussed above. Implementation of the proposed plan would be more effective if there were available a zoning district which included the groups of uses which are compatible with airport operations, while excluding residential and other uses which are not compatible.

Appendix A presents proposed amendments to the City Zoning Ordinance, which describe a new zoning district "A-1-A, Light Industrial, Airport". This district addresses the issue of excluding non-compatible uses and includes performance standards consistent with noise and intensity of use criteria. If this proposed amendment to the ordinance is acceptable to the City, then areas recommended for industrial/commercial uses should be rezoned A-1-A.